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JUN 0 6 2007

IN THE CLAIMS:

1. (Currently Amended) A bandwidth meter for measuring the bandwidth of a spectrum of light emitted from a laser input to the bandwidth meter comprising:

an optical ~~bandwidth monitor~~ dispersive instrument configured to disperse energy in the light emitted from the laser, the dispersion converting the emitted light from a wavelength domain into a spatial domain or temporal domain based on the wavelength distribution of the light energy from the laser ~~providing a first output representative of a first parameter which is indicative of the bandwidth of the light emitted from the laser and a second output representative of a second parameter which is indicative of the bandwidth of the light emitted from the laser; and,~~

a detector configured to record a spatial variation or a temporal variation of the wavelength distribution of the light energy, the detector further configured to provide an output signal based on the recorded spatial variation or temporal variation, wherein the output signal comprises a first spectrum width and a second spectrum width; and

~~an actual~~ a bandwidth calculation apparatus configured to calculate an actual bandwidth parameter utilizing the first ~~output~~ spectrum width and the second ~~output~~ spectrum width as part of a multivariable equation employing predetermined calibration variables specific to the optical ~~bandwidth monitor~~ dispersive instrument~~, to calculate an actual bandwidth parameter~~.

2. (original): The apparatus of claim 1 further comprising:

the actual bandwidth parameter is a spectrum full width at some percent of the maximum within the full width of the spectrum of light emitted from the laser ("FWXM").

3. (original): The apparatus of claim 1, further comprising:

the actual bandwidth parameter is a width between two points on the spectrum defining a content of the spectrum enclosing some percentage of the energy of the full spectrum of the spectrum of light emitted from the laser ("EX").

4. (Currently amended): The apparatus of claim 1 further comprising:

the ~~bandwidth monitor~~ optical dispersive instrument is an etalon and the first ~~output~~ spectrum width is representative of at least one of a width of a fringe of an optical output of the etalon at FWXM or a width between two points on the spectrum enclosing some percentage of the energy of the full spectrum of light emitted from the laser ("EX'") and the second ~~output~~ spectrum width is representative of at least one of a second FWX''M or EX''', where X≠X'' and X'≠X'''.

5. (Currently amended): The apparatus of claim 2 further comprising:

the ~~bandwidth monitor~~ optical dispersive instrument is an etalon and the first ~~output~~ spectrum width is representative of at least one of a width of a fringe of an optical output of the etalon at FWXM or a width between two points on the spectrum enclosing some percentage of the energy of the full spectrum of light emitted from the laser ("EX'") and the second ~~output~~ spectrum width is representative of at least one of a second FWX''M or EX''', where X≠X'' and X'≠X'''.

6. (Currently amended): The apparatus of claim 3 further comprising:

the ~~bandwidth monitor~~ optical dispersive instrument is an etalon and the first ~~output~~ spectrum width is representative of at least one of a width of a fringe of an optical output of the etalon at FWXM or a width between two points on the spectrum enclosing some percentage of the energy of the full spectrum of light emitted from the laser ("EX'") and the second ~~output~~ spectrum width is representative of at least one of a second FWX''M or EX''', where X≠X'' and X'≠X'''.

7. (Currently amended): The apparatus of claim 4, further comprising:

the ~~precomputed~~ predetermined calibration variables are derived from a measurement of the value of the actual bandwidth parameter utilizing a trusted standard, correlated to the occurrence of the first and second ~~output~~ spectrum widths for a calibration spectrum.

8. (Currently amended): The apparatus of claim 5, further comprising:

the ~~precomputed~~ predetermined calibration variables are derived from a measurement of the value of the actual bandwidth parameter utilizing a trusted standard, correlated to the occurrence of the first and second ~~output~~ spectrum widths for a calibration spectrum.

9. (Currently amended): The apparatus of claim 6, further comprising:

the ~~precomputed~~ predetermined variables are derived from a measurement of the value of the actual bandwidth parameter utilizing a trusted standard, correlated to the occurrence of the first and second ~~output~~ spectrum widths for a calibration spectrum.

10. (Currently amended): The apparatus of claim 7, further comprising:

the value of the actual bandwidth parameter is calculated from the equation:

~~estimated actual BW parameter =~~ $K*w_1 + L*w_2 + M$,

where w_1 [[=]] is the first measured ~~output~~ spectrum width representative of FWXM or EX' and w_2 is the second measured ~~output~~ spectrum width representative of FWX''M or EX'''.

11. (Currently amended): The apparatus of claim 8, further comprising:

the value of the actual bandwidth parameter is calculated from the equation:

~~estimated actual BW parameter =~~ $K*w_1 + L*w_2 + M$,

where w_1 [[ ]] is the first measured ~~output~~ spectrum width representative of FWXM or EX' and w_2 is the second measured ~~output~~ spectrum width representative of FWX''M or EX'''.

12. (Currently amended): The apparatus of claim 9, further comprising:

the value of the actual bandwidth parameter is calculated from the equation:

~~estimated BW parameter =~~ $K*w_1 + L*w_2 + M$,

where w_1 [[=]] is the first measured ~~output~~ spectrum width representative of FWXM or EX' and w_2 is the second measured ~~output~~ spectrum width representative of FWX''M or EX'''.

Claims 13-24 Cancelled.

25. (Currently amended): A photolithography light source comprising:

a bandwidth meter for measuring the bandwidth of a spectrum of light emitted from a laser input to the bandwidth meter comprising:

an optical ~~bandwidth monitor~~ dispersive instrument configured to disperse energy in the light emitted from the laser, the dispersion converting the emitted light from a wavelength domain into a spatial domain or temporal domain based on the wavelength distribution of the light energy from the laser ~~providing a first output representative of a first parameter which is indicative of the bandwidth of the light emitted from the laser and a second output representative of a second parameter which is indicative of the bandwidth of the light emitted from the laser; and,~~

a detector configured to record a spatial variation or a temporal variation of the wavelength distribution of the light energy, the detector further configured to provide an output signal based on the recorded spatial variation or temporal variation, wherein the output signal comprises a first spectrum width and a second spectrum width; and

~~an actual~~ a bandwidth calculation apparatus configured to calculate an actual bandwidth parameter utilizing the first ~~output~~ spectrum width and the second ~~output~~ spectrum width as part of a multivariable equation employing predetermined calibration variables specific to the optical ~~bandwidth monitor~~ dispersive instrument~~, to calculate an actual bandwidth parameter~~.

26. (original): The apparatus of claim 25 further comprising:

the actual bandwidth parameter is a spectrum full width at some percent of the maximum within the full width of the spectrum of light emitted from the laser ("FWXM").

27. (original): The apparatus of claim 25, further comprising:

the actual bandwidth parameter is a width between two points on the spectrum enclosing some percentage of the energy of the full spectrum of the spectrum of light emitted from the laser ("EX").

28. (Currently amended): The apparatus of claim 25 further comprising:

the ~~bandwidth monitor~~ optical dispersive instrument is an etalon and the first ~~output~~ spectrum width is representative of at least one of a width of a fringe of an optical output of the etalon at FWXM or a width between two points on the spectrum enclosing some percentage of the energy of the full spectrum of light emitted from the laser ("EX'") and the second ~~output~~ spectrum width is representative of at least one of a second FWX''M or EX''', where X≠X'' and X'≠X'''.

29. (Currently amended): The apparatus of claim 26 further comprising:

the ~~bandwidth monitor~~ optical dispersive instrument is an etalon and the first ~~output~~ spectrum width is representative of at least one of a width of a fringe of an optical output of the etalon at FWXM or a width between two points on the spectrum enclosing some percentage of the energy of the full spectrum of light emitted from the laser ("EX'") and the second ~~output~~ spectrum width is representative of at least one of a second FWX''M or EX''', where X≠X'' and X'≠X'''.

30. (Currently amended): The apparatus of claim 27 further comprising:

the ~~bandwidth monitor~~ optical dispersive instrument is an etalon and the first ~~output~~ spectrum width is representative of at least one of a width of a fringe of an optical output of the etalon at FWXM or a width between two points on the spectrum enclosing some percentage of the energy of the full spectrum of light emitted from the laser ("EX'") and the second ~~output~~ spectrum width is representative of at least one of a second FWX''M or EX''', where X≠X'' and X'≠X'''.

31. (Currently amended): The apparatus of claim 28, further comprising:

the ~~precomputed~~ predetermined calibration variables are derived from a measurement of the value of the actual bandwidth parameter utilizing a trusted standard,

correlated to the occurrence of the first and second ~~outputs~~ spectrum widths for a calibration spectrum.

32. (Currently amedned): The apparatus of claim 29, further comprising:

the ~~precomputed~~ predetermined calibration variables are derived from a measurement of the value of the actual bandwidth parameter utilizing a trusted standard, correlated to the occurrence of the first and second ~~outputs~~ spectrum widths for a calibration spectrum.

33. (Currently amended): The apparatus of claim 30, further comprising:

the ~~precomputed~~ predetermined calibration variables are derived from a measurement of the value of the actual bandwidth parameter utilizing a trusted standard, correlated to the occurrence of the first and second ~~outputs~~ spectrum widths for a calibration spectrum.

34. (Currently amended): The apparatus of claim 31, further comprising:

the value of the actual bandwidth parameter is calculated from the equation~~:~~

~~estimated BW parameter~~ = $K*w_1 + L*w_2 + M$,

where w_1 [[=]] is the first measured representative ~~output~~ spectrum width of FWXM or EX' and w_2 is the second measured ~~output~~ spectrum width representative of FWX''M or EX'''.

35. (Currently amended): The apparatus of claim 32, further comprising:

the value of the actual bandwidth parameter is calculated from the equation~~:~~

~~estimated BW parameter~~ = $K*w_1 + L*w_2 + M$,

where w_1 [[=]] is the first measured ~~output~~ spectrum width representative of FWXM or EX' and w_2 is the second measured ~~output~~ spectrum width representative of FWX''M or EX'''.

36. (Currently amended): The apparatus of claim 33, further comprising:

the value of the actual bandwidth parameter is calculated from the equation~~:~~

~~estimated BW parameter~~ = $K^*w_1 + L^*w_2 + M$,

where w_1 [[=]] is the first measured ~~output~~ spectrum width representative of FWXM or EX' and w_2 is the second measured ~~output~~ spectrum width representative of FWX''M or EX'''.

Claims 37-48 cancelled.

49. (Currently amended): A photolithography tool comprising:

a laser light source comprising:

a bandwidth meter for measuring the bandwidth of a spectrum of light emitted from a laser input to the bandwidth meter comprising:

an optical ~~bandwidth monitor~~ dispersive instrument configured to disperse energy in the light emitted from the laser, the dispersion converting the emitted light from a wavelength domain into a spatial domain or temporal domain based on the wavelength distribution of the light energy from the laser ~~providing a first output representative of a first parameter which is indicative of the bandwidth of the light emitted from the laser and a second output representative of a second parameter which is indicative of the bandwidth of the light emitted from the laser; and,~~

a detector configured to record a spatial variation or a temporal variation of the wavelength distribution of the light energy, the detector further configured to provide an output signal based on the recorded spatial variation or temporal variation, wherein the output signal comprises a first spectrum width and a second spectrum width; and

~~an actual~~ a bandwidth calculation apparatus configured to calculate an actual bandwidth parameter utilizing the first ~~output~~ spectrum width and the second ~~output~~ spectrum width as part of a multivariable equation employing predetermined calibration variables specific to the optical ~~bandwidth monitor~~ dispersive instrument, ~~to calculate an actual bandwidth parameter~~.

50. (original): The apparatus of claim 49 further comprising:

the actual bandwidth parameter is a spectrum full width at some percent of the maximum within the full width of the spectrum of light emitted from the laser ("FWXM").

51. (original): The apparatus of claim 49, further comprising:

the actual bandwidth parameter is a width between two points on the spectrum enclosing some percentage of the energy of the full spectrum of the spectrum of light emitted from the laser ("EX").

52. (Currently amended): The apparatus of claim 49 further comprising:

the ~~bandwidth monitor~~ optical dispersive instrument is an etalon and the first ~~output~~ spectrum width is representative of at least one of a width of a fringe of an optical output of the etalon at FWXM or a width between two points on the spectrum enclosing some percentage of the energy of the full spectrum of light emitted from the laser ("EX'") and the second ~~output~~ spectrum width is representative of at least one of a second FWX''M or EX''', where X≠X'' and X'≠X'''.

53. (Currently amended): The apparatus of claim 50 further comprising:

the ~~bandwidth monitor~~ optical dispersive instrument is an etalon and the first ~~output~~ spectrum width is representative of at least one of a width of a fringe of an optical output of the etalon at FWXM or a width between two points on the spectrum enclosing some percentage of the energy of the full spectrum of light emitted from the laser ("EX'") and the second ~~output~~ spectrum width is representative of at least one of a second FWX''M or EX''', where X≠X'' and X'≠X'''.

54. (Currently amended): The apparatus of claim 51 further comprising:

the ~~bandwidth monitor~~ optical dispersive instrument is an etalon and the first ~~output~~ spectrum width is representative of at least one of a width of a fringe of an optical output of the etalon at FWXM or a width between two points on the spectrum enclosing some percentage of the energy of the full spectrum of light emitted from the laser

("EX'") and the second ~~output~~ spectrum width is representative of at least one of a second FWX''M or EX''', where X≠X'' and X'≠X'''.

55. (Currently amended): The apparatus of claim 52, further comprising:

the ~~precomputed~~ predetermined calibration variables are derived from a measurement of the value of the actual bandwidth parameter utilizing a trusted standard, correlated to the occurrence of the first and second ~~outputs~~ spectrum widths for a calibration spectrum.

56. (Currently amended): The apparatus of claim 53, further comprising:

the ~~precomputed~~ predetermined calibration variables are derived from a measurement of the value of the actual bandwidth parameter utilizing a trusted standard, correlated to the occurrence of the first and second ~~outputs~~ spectrum widths for a calibration spectrum.

57. (Currently amended): The apparatus of claim 54, further comprising:

the ~~precomputed~~ predetermined calibration variables are derived from a measurement of the value of the actual bandwidth parameter utilizing a trusted standard, correlated to the occurrence of the first and second ~~outputs~~ spectrum widths for a calibration spectrum.

58. (Currently amended): The apparatus of claim 55, further comprising:

the value of the actual bandwidth parameter is calculated from the equation: ~~estimated BW parameter~~ = $K*w_1 + L*w_2 + M$,

where w_1 [[ ]] the first measured ~~output~~ spectrum width representative of FWXM or EX' and w_2 is the second measured ~~output~~ spectrum width representative of FWX''M or EX'''.

59. (Currently amended): The apparatus of claim 56, further comprising:

the value of the actual bandwidth parameter is calculated from the equation: ~~estimated BW parameter~~ = $K*w_1 + L*w_2 + M$,

where w_1 ~~[[=]]~~ the first measured ~~output~~ spectrum width representative of FWXM or EX' and w_2 is the second measured ~~output~~ spectrum width representative of FWX''M or EX'''.

60. (Currently amended): The apparatus of claim 57, further comprising:

the value of the actual bandwidth parameter is calculated from the equation:

~~estimated BW parameter~~ $= K*w_1 + L*w_2 + M$,

where w_1 ~~[[ ]]~~ the first measured ~~output~~ spectrum width representative of FWXM or EX' and w_2 is the second measured ~~output~~ spectrum width representative of FWX''M or EX'''.

Claims 61-72 (cancelled)

73. (Currently amended): A bandwidth meter for measuring the bandwidth of a spectrum of light emitted from a laser input to the bandwidth meter comprising:

an optical ~~bandwidth monitoring~~ dispersive means configured to disperse energy in the light emitted from the laser, the dispersion converting the emitted light from a wavelength domain into a spatial domain or temporal domain based on the wavelength distribution of the light energy from the laser ~~for providing a first output representative of a first parameter which is indicative of the bandwidth of the light emitted from the laser and a second output representative of a second parameter which is indicative of the bandwidth of the light emitted from the laser; and,~~

detector means configured to record a spatial variation or a temporal variation of the wavelength distribution of the light energy, the detector further configured to provide an output signal based on the recorded spatial variation or temporal variation, wherein the output signal comprises a first spectrum width and a second spectrum width; and

~~an actual~~ bandwidth calculation means, configured to calculate an actual bandwidth parameter utilizing the first ~~output~~ spectrum width and the second ~~output~~ spectrum width as part of a multivariable equation employing predetermined calibration variables specific to the optical ~~bandwidth monitoring~~ dispersive means~~, for calculating an actual bandwidth parameter~~.

74. (original): The apparatus of claim 73 further comprising:

the actual bandwidth parameter is a spectrum full width at some percent of the maximum within the full width of the spectrum of light emitted from the laser ("FWXM").

75. (original): The apparatus of claim 73, further comprising:

the actual bandwidth parameter is a width between two points on the spectrum enclosing some percentage of the energy of the full spectrum of the spectrum of light emitted from the laser ("EX").

76. (Currently amended): The apparatus of claim 73 further comprising:

the ~~bandwidth monitoring~~ optical dispersive means is an etalon and the first ~~output~~ spectrum width is representative of at least one of a width of a fringe of an optical output of the etalon at FWXM or a width between two points on the spectrum enclosing some percentage of the energy of the full spectrum of light emitted from the laser ("EX'") and the second ~~output~~ spectrum width is representative of at least one of a second FWX''M or EX''', where X≠X'' and X'≠X'''.

77. (Currently amended): The apparatus of claim 74 further comprising:

the ~~bandwidth monitoring~~ optical dispersive means is an etalon and the first ~~output~~ spectrum width is representative of at least one of a width of a fringe of an optical output of the etalon at FWXM or a width between two points on the spectrum enclosing some percentage of the energy of the full spectrum of light emitted from the laser ("EX'") and the second ~~output~~ spectrum width is representative of at least one of a second FWX''M or EX''', where X≠X'' and X'≠X'''.

78. (Currently amended): The apparatus of claim 77 further comprising:

the ~~bandwidth monitoring~~ optical dispersive means is an etalon and the first ~~output~~ spectrum width is representative of at least one of a width of a fringe of an optical output of the etalon at FWXM or a width between two points on the spectrum enclosing

some percentage of the energy of the full spectrum of light emitted from the laser ("EX'") and the second ~~output~~ spectrum width is representative of at least one of a second FWX''M or EX''', where X≠X'' and X'≠X'''.

79. (Currently amended): The apparatus of claim 76, further comprising:

the ~~precomputed~~ predetermined calibration variables are derived from a measurement of the value of the actual bandwidth parameter utilizing a trusted standard, correlated to the occurrence of the first and second ~~outputs~~ spectrum widths for a calibration spectrum.

80. (Currently amended): The apparatus of claim 77, further comprising:

the ~~precomputed~~ predetermined calibration variables are derived from a measurement of the value of the actual bandwidth parameter utilizing a trusted standard, correlated to the occurrence of the first and second ~~outputs~~ spectrum widths for a calibration spectrum.

81. (Currently amended): The apparatus of claim 78, further comprising:

the ~~precomputed~~ predetermined calibration variables are derived from a measurement of the value of the actual bandwidth parameter utilizing a trusted standard, correlated to the occurrence of the first and second ~~outputs~~ spectrum widths for a calibration spectrum.

82. (Currently amended): The apparatus of claim 79, further comprising:

the value of the actual bandwidth parameter is calculated from the equation:

~~estimated actual BW parameter~~ $= K*w_1 + L*w_2 + M$,

where w_1 [[=]] is the first measured ~~output~~ spectrum width representative of FWXM or EX' and w_2 is the second measured ~~output~~ spectrum width representative of FWX''M or EX'''.

83. (Currently amended): The apparatus of claim 80, further comprising:

the value of the actual bandwidth parameter is calculated from the equation:

~~estimated actual BW parameter =~~ $K^*w_1 + L^*w_2 + M$,

where w_1 [[ ]] the first measured ~~output~~ spectrum width representative of FWXM or EX' and w_2 is the second measured ~~output~~ spectrum width representative of FWX''M or EX'''.

84. (Currently amended): The apparatus of claim 81, further comprising:

the value of the actual bandwidth parameter is calculated from the equation:

~~estimated BW parameter =~~ $K^*w_1 + L^*w_2 + M$,

where w_1 [[~]] the first measured ~~output~~ spectrum width representative of FWXM or EX' and w_2 is the second measured ~~output~~ spectrum width representative of FWX''M or EX'''.

Claims 85-96 cancelled.

97. (Currently amended): A photolithography light source comprising:

a bandwidth meter means for measuring the bandwidth of a spectrum of light emitted from a laser input to the bandwidth meter means comprising:

an optical ~~bandwidth monitoring~~ dispersive instrument means configured to disperse energy in the light emitted from the laser, the dispersion converting the emitted light from a wavelength domain into a spatial domain or temporal domain based on the wavelength distribution of the light energy from the laser ~~means for providing a first output representative of a first parameter which is indicative of the bandwidth of the light emitted from the laser a second output representative of a second parameter which is indicative of the bandwidth of the light emitted from the laser; and;~~

detector means configured to record a spatial variation or a temporal variation of the wavelength distribution of the light energy, the detector further configured to provide an output signal based on the recorded spatial variation or temporal variation, wherein the output signal comprises a first spectrum width and a second spectrum width; and

~~an actual~~ a bandwidth calculation means configured to calculate an actual bandwidth parameter utilizing the first ~~output~~ spectrum width and the second ~~output~~ spectrum width as part of a multivariable equation employing predetermined calibration variables specific to the optical ~~bandwidth monitor~~ dispersive instrument means~~, to calculate an actual bandwidth parameter~~.

98. (original): The apparatus of claim 97 further comprising:

the actual bandwidth parameter is a spectrum full width at some percent of the maximum within the full width of the spectrum of light emitted from the laser ("FWXM").

99. (original): The apparatus of claim 97, further comprising:

the actual bandwidth parameter is a width between two points on the spectrum enclosing some percentage of the energy of the full spectrum of the spectrum of light emitted from the laser ("EX").

100. (Currently amended): The apparatus of claim 97 further comprising:

the ~~bandwidth monitoring~~ optical dispersive instrument means is an etalon and the first ~~output~~ spectrum width is representative of at least one of a width of a fringe of an optical output of the etalon at FWXM or a width between two points on the spectrum enclosing some percentage of the energy of the full spectrum of light emitted from the laser ("EX'") and the second ~~output~~ spectrum width is representative of at least one of a second FWX''M or EX''', where X≠X'' and X'≠X'''.

101. (Currently amended): The apparatus of claim 98 further comprising:

the ~~bandwidth monitoring~~ optical dispersive instrument means is an etalon and the first ~~output~~ spectrum width is representative of at least one of a width of a fringe of an optical output of the etalon at FWXM or a width between two points on the spectrum enclosing some percentage of the energy of the full spectrum of light emitted from the laser ("EX'") and the second ~~output~~ spectrum width is representative of at least one of a second FWX''M or EX''', where X≠X'' and X'≠X'''.

102. (Currently amended): The apparatus of claim 99 further comprising:

the ~~bandwidth monitoring~~ optical dispersive instrument means is an etalon and the first ~~output~~ spectrum width is representative of at least one of a width of a fringe of an optical output of the etalon at FWXM or a width between two points on the spectrum enclosing some percentage of the energy of the full spectrum of light emitted from the laser ("EX'") and the second ~~output~~ spectrum width is representative of at least one of a second FWX''M or EX''', where X≠X'' and X'≠X'''.

103. (Currently amended): The apparatus of claim 100, further comprising:

the ~~precomputed~~ predetermined calibration variables are derived from a measurement of the value of the actual bandwidth parameter utilizing a trusted standard, correlated to the occurrence of the first and second ~~output~~ spectrum widths for a calibration spectrum.

104. (Currently amended): The apparatus of claim 101, further comprising:

the ~~precomputed~~ predetermined calibration variables are derived from a measurement of the value of the actual bandwidth parameter utilizing a trusted standard, correlated to the occurrence of the first and second ~~output~~ spectrum widths for a calibration spectrum.

105. (Currently amended): The apparatus of claim 102, further comprising:

the ~~precomputed~~ predetermined calibration variables are derived from a measurement of the value of the actual bandwidth parameter utilizing a trusted standard, correlated to the occurrence of the first and second ~~output~~ spectrum widths for a calibration spectrum.

106. (Currently amended): The apparatus of claim 103, further comprising:

the value of the actual bandwidth parameter is calculated from the equation: ~~estimated BW parameter~~ = $K*w_1 + L*w_2 + M$,

where w_1 [[ ]] is the first measured ~~output~~ spectrum width representative of FWXM or EX' and w_2 is the second measured ~~output~~ spectrum width representative of FWX''M or EX'''.

107. (Currently amended): The apparatus of claim 104, further comprising:

the value of the actual bandwidth parameter is calculated from the equation:

~~estimated BW parameter =~~ $K*w_1 + L*w_2 + M$,

where w_1 [[=]] is the first measured ~~output~~ spectrum width representative of FWXM or EX' and w_2 is the second measured ~~output~~ spectrum width representative of FWX''M or EX'''.

108. (Currently amended): The apparatus of claim 105, further comprising:

the value of the actual bandwidth parameter is calculated from the equation:

~~estimated BW parameter =~~ $K*w_1 + L*w_2 + M$.

where w_1 [[=]] is the first measured ~~output~~ spectrum width representative of FWXM or EX' and w_2 is the second measured ~~output~~ spectrum width representative of FWX''M or EX'''.

Claims 109-120 (Cancelled).

121. (Currently amended): A photolithography tool comprising:

a laser light source comprising:

a bandwidth meter means for measuring the bandwidth of a spectrum of light emitted from a laser input to the bandwidth meter means comprising:

an optical ~~bandwidth monitoring~~ dispersive instrument means configured to disperse energy in the light emitted from the laser, the dispersion converting the emitted light from a wavelength domain into a spatial domain or temporal domain based on the wavelength distribution of the light energy from the laser ~~means for providing a first output representative of a first parameter which is indicative of the bandwidth of the light emitted from the laser and a second output~~

~~representative of a second parameter which is indicative of the bandwidth of the light emitted from the laser; and,~~

detector means configured to record a spatial variation or a temporal variation of the wavelength distribution of the light energy, the detector further configured to provide an output signal based on the recorded spatial variation or temporal variation, wherein the output signal comprises a first spectrum width and a second spectrum width; and

~~an actual~~ a bandwidth calculation means configured to calculate an actual bandwidth parameter utilizing the first ~~output~~ spectrum width and the second ~~output~~ spectrum width as part of a multivariable equation employing predetermined calibration variables specific to the optical ~~bandwidth monitor~~ dispersive instrument means~~, to calculate an actual bandwidth parameter~~.

122. (original): The apparatus of claim 121 further comprising:

the actual bandwidth parameter is a spectrum full width at some percent of the maximum within the full width of the spectrum of light emitted from the laser ("FWXM").

123. (original): The apparatus of claim 121, further comprising:

the actual bandwidth parameter is a width between two points on the spectrum enclosing some percentage of the energy of the full spectrum of the spectrum of light emitted from the laser ("EX").

124. (Currently amended): The apparatus of claim 121 further comprising:

the ~~bandwidth monitoring~~ optical dispersive instrument means is an etalon and the first ~~output~~ spectrum width is representative of at least one of a width of a fringe of an optical output of the etalon at FWXM or a width between two points on the spectrum enclosing some percentage of the energy of the full spectrum of light emitted from the laser ("EX'") and the second ~~output~~ spectrum width is representative of at least one of a second FWX''M or EX''', where X≠X'' and X'≠X'''.

125. (Currently amended): The apparatus of claim 122 further comprising:

the ~~bandwidth-monitoring~~ optical dispersive instrument means is an etalon and the first ~~output~~ spectrum width is representative of at least one of a width of a fringe of an optical output of the etalon at FWXM or a width between two points on the spectrum enclosing some percentage of the energy of the full spectrum of light emitted from the laser ("EX'") and the second ~~output~~ spectrum width is representative of at least one of a second FWX''M or EX''', where X≠X'' and X'≠X'''.

126. (Currently amended): The apparatus of claim 123 further comprising:

the ~~bandwidth-monitoring~~ optical dispersive instrument means is an etalon and the first ~~output~~ spectrum width is representative of at least one of a width of a fringe of an optical output of the etalon at FWXM or a width between two points on the spectrum enclosing some percentage of the energy of the full spectrum of light emitted from the laser ("EX'") and the second ~~output~~ spectrum width is representative of at least one of a second FWX''M or EX''', where X≠X'' and X'≠X'''.

127. (Currently amended): The apparatus of claim 124, further comprising:

the ~~precomputed~~ predetermined calibration variables are derived from a measurement of the value of the actual bandwidth parameter utilizing a trusted standard, correlated to the occurrence of the first and second ~~outputs~~ spectrum widths for a calibration spectrum.

128. (Currently amended): The apparatus of claim 125, further comprising:

the ~~precomputed~~ predetermined calibration variables are derived from a measurement of the value of the actual bandwidth parameter utilizing a trusted standard, correlated to the occurrence of the first and second ~~outputs~~ spectrum widths for a calibration spectrum.

129. (Currently amended): The apparatus of claim 126, further comprising:

the ~~precomputed~~ predetermined calibration variables are derived from a measurement of the value of the actual bandwidth parameter utilizing a trusted standard,

correlated to the occurrence of the first and second ~~outputs~~ spectrum widths for a calibration spectrum.

130. (Currently amended): The apparatus of claim 127, further comprising:

the value of the actual bandwidth parameter is calculated from the equation: ~~estimated BW parameter =~~ $K*w_1 + L*w_2 + M$,

where w_1 [[=]] is first measured ~~output~~ spectrum width representative of FWXM or EX' and w_2 is the second measured ~~output~~ spectrum width representative of FWX''M or EX'''.

131. (Currently amended): The apparatus of claim 128, further comprising:

the value of the actual bandwidth parameter is calculated from the equation: ~~estimated BW parameter =~~ $K*w_1 + L*w_2 + M$,

where w_1 [[=]] is the first measured ~~output~~ spectrum width representative of FWXM or EX' and w_2 is the second measured ~~output~~ spectrum width representative of FWX''M or EX'''.

132. (Currently amended): The apparatus of claim 139, further comprising:

the value of the actual bandwidth parameter is calculated from the equation: ~~estimated BW parameter =~~ $K*w_1 + L*w_2 + M$,

where w_1 [[=]] is the first measured ~~output~~ spectrum width representative of FWXM or EX' and w_2 is the second measured ~~output~~ spectrum width representative of FWX''M or EX'''.

Claims 133-144 (Cancelled)

145. (Currently amended): A method for measuring the bandwidth of a spectrum of light emitted from a laser input to the bandwidth meter comprising:

utilizing an optical ~~bandwidth monitor~~ dispersive instrument configured to disperse energy in the light emitted from the laser, converting the emitted light from a wavelength domain into a spatial domain or temporal domain based on the wavelength

distribution of the light energy from the laser, ~~providing a first output representative of a first parameter which is indicative of the bandwidth of the light emitted from the laser and a second output representative of a second parameter which is indicative of the bandwidth of the light emitted from the laser; and,~~

recording a spatial variation or a temporal variation of the wavelength distribution of the light energy;

providing an output signal based on the recorded spatial variation or temporal variation, wherein the output signal comprises a first spectrum width and a second spectrum width; and

~~in an actual bandwidth calculation apparatus,~~ calculating an actual bandwidth parameter utilizing the first ~~output~~ spectrum width and the second ~~output~~ spectrum width as part of a multivariable linear equation employing predetermined calibration variables specific to the optical ~~bandwidth monitor~~ dispersive instrument~~, calculating an actual bandwidth parameter~~.

146. (Currently amended): A bandwidth meter for measuring the bandwidth of a spectrum of light emitted from a narrow band light source input to the bandwidth meter comprising:

an optical ~~bandwidth monitor~~ dispersive instrument configured to disperse energy in the light emitted from the laser, the dispersion converting the emitted light from a wavelength domain into a spatial domain or temporal domain based on the wavelength distribution of the light energy from the laser ~~providing a first output representative of a first parameter which is indicative of the bandwidth of the light emitted from the light source and a second output representative of a second parameter which is indicative of the bandwidth of the light emitted from the light source; and,~~

a detector configured to record a spatial variation or a temporal variation of the wavelength distribution of the light energy, the detector further configured to provide an output signal based on the recorded spatial variation or temporal variation, wherein the output signal comprises a first spectrum width and a second spectrum width; and

~~an actual~~ a bandwidth calculation apparatus configured to calculate an actual bandwidth parameter utilizing the first ~~output~~ spectrum width and the second ~~output~~ spectrum width as part of a multivariable equation employing predetermined calibration variables specific to the optical ~~bandwidth monitor~~ dispersive instrument~~, to calculate an actual bandwidth parameter~~.

147. (original): The apparatus of claim 146 further comprising:

the actual bandwidth parameter is a spectrum full width at some percent of the maximum within the full width of the spectrum of light emitted from the light source ("FWXM").

148. (original): The apparatus of claim146, further comprising:

the actual bandwidth parameter is a width between two points on the spectrum defining a content of the spectrum enclosing some percentage of the energy of the full spectrum of the spectrum of light emitted from the light source ("EX").

149. (Currently amended): The apparatus of claim 146 further comprising:

the ~~bandwidth monitor~~ optical dispersive instrument is an etalon and the first ~~output~~ spectrum width is representative of at least one of a width of a fringe of an optical output of the etalon at FWXM or a width between two points on the spectrum enclosing some percentage of the energy of the full spectrum of light emitted from the light source ("EX'") and the second ~~output~~ spectrum width is representative of at least one of a second FWX''M or EX''', where X≠X'' and X'≠X'''.

150. (Currently amended): The apparatus of claim 147 further comprising:

the ~~bandwidth monitor~~ optical dispersive instrument is an etalon and the first ~~output~~ spectrum width is representative of at least one of a width of a fringe of an optical output of the etalon at FWXM or a width between two points on the spectrum enclosing some percentage of the energy of the full spectrum of light emitted from the light source ("EX'") and the second ~~output~~ spectrum width is representative of at least one of a second FWX''M or EX''', where X≠X'' and X'≠X'''.

151. (Currently amended): The apparatus of claim 148 further comprising:

the ~~bandwidth monitor~~ optical dispersive instrument is an etalon and the first ~~output~~ spectrum width is representative of at least one of a width of a fringe of an optical output of the etalon at FWXM or a width between two points on the spectrum enclosing some percentage of the energy of the full spectrum of light emitted from the light source ("EX'") and the second ~~output~~ spectrum width is representative of at least one of a second FWX''M or EX''', where X≠X'' and X'≠X'''.

152. (Currently amended): The apparatus of claim 149, further comprising:

the ~~precomputed~~ predetermined calibration variables are derived from a measurement of the value of the actual bandwidth parameter utilizing a trusted standard, correlated to the occurrence of the first and second ~~outputs~~ spectrum widths for a calibration spectrum.

153. (Currently amended): The apparatus of claim 150, further comprising:

the ~~precomputed~~ predetermined calibration variables are derived from a measurement of the value of the actual bandwidth parameter utilizing a trusted standard, correlated to the occurrence of the first and second ~~outputs~~ spectrum widths for a calibration spectrum.

154. (Currently amended): The apparatus of claim 151, further comprising:

the ~~precomputed~~ predetermined calibration variables are derived from a measurement of the value of the actual bandwidth parameter utilizing a trusted standard, correlated to the occurrence of the first and second ~~outputs~~ spectrum widths for a calibration spectrum.

155. (Currently amended): The apparatus of claim 152, further comprising:

the value of the actual bandwidth parameter is calculated from the equation: ~~estimated BW parameter =~~ $K*w_1 + L*w_2 + M$,

where w_1 [[ ]] is the first measured ~~output~~ spectrum width representative of FWXM or EX' and w_2 is the second measured ~~output~~ spectrum width representative of FWX''M or EX'''.

156. (Currently amended): The apparatus of claim 153, further comprising:

the value of the actual bandwidth parameter is calculated from the equation:

~~estimated BW parameter~~ = $K*w_1 + L*w_2 + M$,

where w_1 [[ ]] is the first measured ~~output~~ spectrum width representative of FWXM or EX' and w_2 is the second measured ~~output~~ spectrum width representative of FWX''M or EX'''.

157. (Currently amended): The apparatus of claim 154, further comprising:

the value of the actual bandwidth parameter is calculated from the equation:

~~estimated BW parameter~~ = $K*w_1 + L*w_2 + M$,

where w_1 [[=]] is the first measured ~~output~~ spectrum width representative of FWXM or EX' and w_2 is the second measured ~~output~~ spectrum width representative of FWX''M or EX'''.

158. (Currently amended): A bandwidth meter comprising:

an optically dispersive instrument, dispersing the energy comprising the output of an light source into a spatial or temporal domain according to the wavelength distribution of the energy of the light source;

a detector, recording, respectively, the spatial or temporal variation of wavelength distribution of the energy and providing an output signal based upon the recorded spatial or temporal variation;

a first calculation apparatus [[,]] configured to ~~calculating~~ calculate the width of the wavelength distribution of the energy, respectively, in the space or time domain, based upon, respectively, the spatial or temporal variation of the wavelength distribution of the energy recorded by the detector, and the first calculation apparatus further configured to ~~converting~~ convert, respectively, the spatial or temporal distribution into

the wavelength domain according to the optical properties of the dispersive instrument; and

a second calculation apparatus[[,]]configured to ~~utilizing~~ utilize at least one width of the wavelength distribution of the energy in the wavelength domain, calculated by the first calculation apparatus, ~~by~~ second calculation apparatus configured to apply~~ing~~ the at least one width as an argument of a multivariable equation having predetermined calibration variables specific to the optical source, the optically dispersive instrument, the detector, and the at least one width taken as an argument.

159. (original): The apparatus of claim 158 further comprising:

the first calculation apparatus and the second calculation apparatus are the same calculation apparatus.

160. (original): The apparatus of claim 158 further comprising:

the at least one width is at least two widths selected from the group comprising a spectrum full width at some percent of the maximum within the full width of the spectrum of light emitted from the light source ("FWXM") and ("FWX'M"), and a width between two points on the spectrum defining a content of the spectrum enclosing some percentage of the energy of the full spectrum of the spectrum of light emitted from the light source ("EX'' ") and ("EX''' "), where X≠X' and X''≠X'''.

161. (original): The apparatus of claim 159 further comprising:

the at least one width is at least two widths selected from the group comprising a spectrum full width at some percent of the maximum within the full width of the spectrum of light emitted from the light source ("FWXM") and ("FWX'M"), and a width between two points on the spectrum defining a content of the spectrum enclosing some percentage of the energy of the full spectrum of the spectrum of light emitted from the light source ("EX'' ") or ("EX''' "), where X≠X' and X''≠X'''.

162. (original): The apparatus of claim 158 further comprising:

wherein the multivariable equation is evaluated to calculate an actual bandwidth parameter descriptive of the spectral distribution of the energy output by the light source selected from the group FWX*M, EX**.

163. (original): The apparatus of claim 159 further comprising:

wherein the multivariable equation is evaluated to calculate an actual bandwidth parameter descriptive of the spectral distribution of the energy output by the light source selected from the group FWX*M, EX**.

164. (original): The apparatus of claim 160 further comprising:

wherein the multivariable equation is evaluated to calculate an actual bandwidth parameter descriptive of the spectral distribution of the energy output by the light source selected from the group FWX*M, EX**, wherein X* may equal either X or X' and X** may equal either X'' or X'''.

165. (previously amended): The apparatus of claim 158 further comprising:

wherein the multivariable equation is evaluated to calculate an actual bandwidth parameter descriptive of the spectral distribution of the energy output by the light source selected from the group FWX*M, EX**, wherein X* may equal either X or X' and X** may equal either X'' or X'''.